

## FLIGHT SUMMARY REPORT

**Flight Number:** 98-015  
**Calendar/Julian Date:** 16 December 1997 • 350  
**Sensor Package:** Thematic Mapper Simulator (TMS)  
**Area(s) Covered:** Central California (Starlink)

**Investigator(s):** Functional Sensor Flight

**Aircraft #:** 709

### SENSOR DATA

**Accession #:** -----  
**Sensor ID #:** 074  
**Sensor Type:** TMS  
**Focal Length:** -----  
**Film Type:** -----  
**Filtration:** -----  
**Spectral Band:** -----  
**f Stop:** -----  
**Shutter Speed:** -----  
**# of Frames:** -----  
**% Overlap:** -----  
**Quality:** Good  
**Remarks:**

## **Airborne Science and Applications Program**

The Airborne Science and Applications Program (ASAP) is supported by three ER-2 high altitude Earth Resources Survey aircraft. These aircraft are operated by the High Altitude Missions Branch at NASA-Ames Research Center, Moffett Field, California. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and *in situ* data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments. The following provides a description of the digital multispectral sensor(s) and camera(s) used for data collection during this flight.

## **Thematic Mapper Simulator**

The Daedalus Thematic Mapper Simulator (TMS) is a multispectral scanner flown aboard the ER-2 aircraft which simulates spatial and spectral characteristics of the seven Landsat-D Thematic Mapper bands. The specific bands are as follows:

| <u>Daedalus Channel</u> | <u>TM Band</u> | <u>Wavelength, <i>mm</i></u> |
|-------------------------|----------------|------------------------------|
| 1                       | A              | 0.42 - 0.45                  |
| 2                       | 1              | 0.45 - 0.52                  |
| 3                       | 2              | 0.52 - 0.60                  |
| 4                       | B              | 0.60 - 0.62                  |
| 5                       | 3              | 0.63 - 0.69                  |
| 6                       | C              | 0.69 - 0.75                  |
| 7                       | 4              | 0.76 - 0.90                  |
| 8                       | D              | 0.91 - 1.05                  |
| 9                       | 5              | 1.55 - 1.75                  |
| 10                      | 7              | 2.08 - 2.35                  |
| 11                      | 6              | 8.5 - 14.0 low gain          |
| 12                      | 6              | 8.5 - 14.0 high gain         |

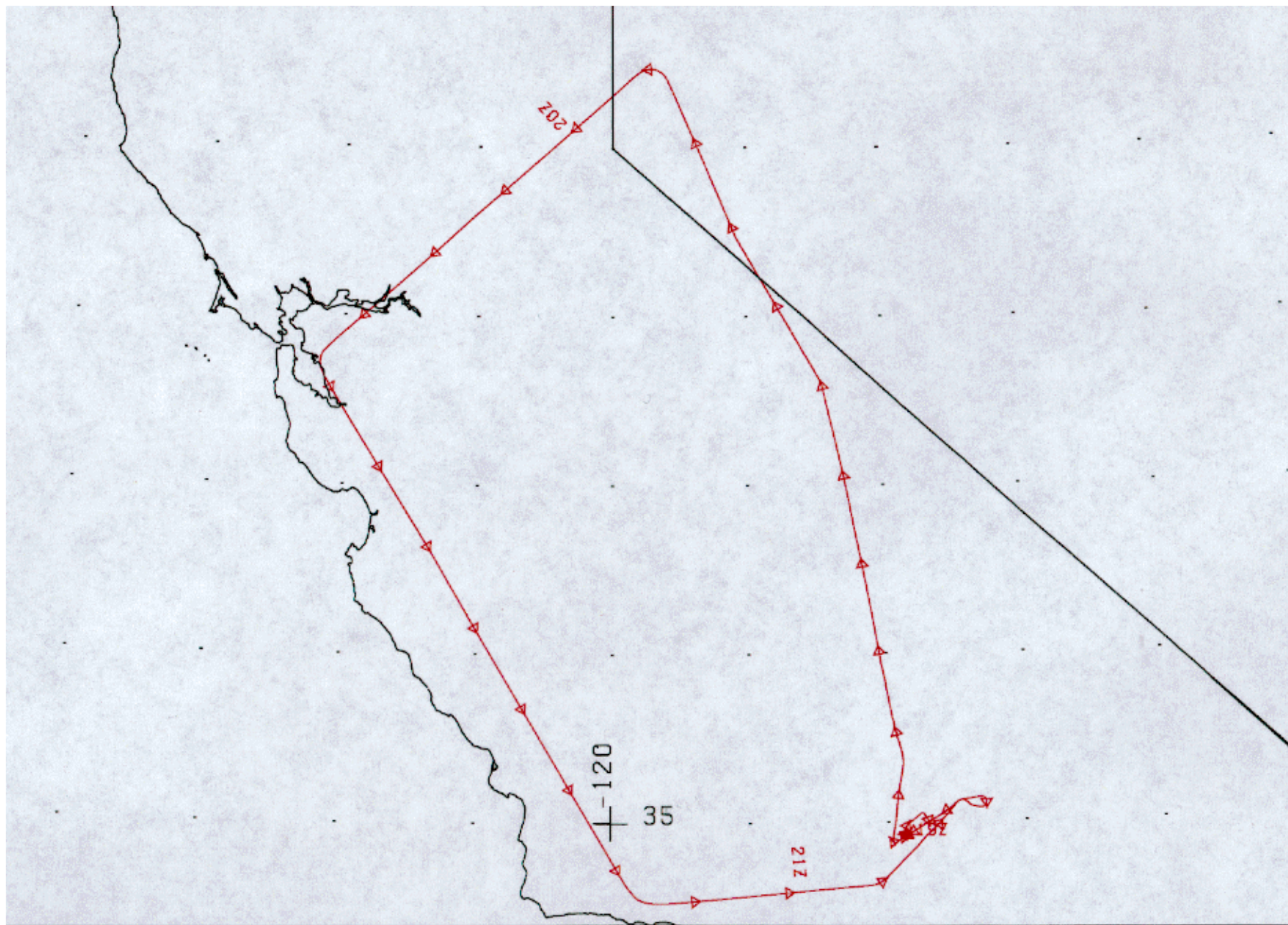
Sensor/aircraft parameters are as follows:

|                    |                                    |
|--------------------|------------------------------------|
| IFOV:              | 1.25 mrad                          |
| Ground Resolution: | 81 feet (25 meters) at 65,000 feet |
| Total Scan Angle:  | 43°                                |
| Swath Width:       | 8.4 nmi (15.6 km) at 65,000 feet   |
| Pixels/Scan Line:  | 716                                |
| Scan Rate:         | 12.5 scans/second                  |
| Ground Speed:      | 400 kts (206 m/second)             |

Information on data tape format, logical record format, and scanner calibration data may be obtained from the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 650-604-6252).

DAEDALUS FLIGHT DATA  
FLIGHT NUMBER: 98-015

| Check<br>Points | A c t u a l<br>t i m e (GMT)<br>b e g i n e n d |            | A c t u a l<br>scanline<br>begin e n d |       | Altitude<br>feet/meter | Scan<br>Speed<br>(rps) | total<br>G o o d<br>scanlines | total<br>Interpolated<br>scanlines | total<br>Repeated<br>scanlines |
|-----------------|---|------------|--|-------|------------------------|------------------------|-------------------------------|------------------------------------|--------------------------------|
| A-B             | 19:22:57.8                                      | 19:34:23.6 | 22416                                  | 30989 | 65000/19812            | 12.50                  | 8574                          | 0                                  | 0                              |
| C-D             | 19:35:27.6                                      | 19:53:19.6 | 31789                                  | 45189 | 67500/20574            | 12.50                  | 13401                         | 0                                  | 0                              |
| E-F             | 19:55:59.6                                      | 20:16:15.6 | 47189                                  | 62389 | 69500/21184            | 12.50                  | 15201                         | 0                                  | 0                              |
| G-H             | 20:19:43.6                                      | 20:33:03.6 | 64989                                  | 74989 | 65000/19812            | 12.50                  | 10001                         | 0                                  | 0                              |



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16 DECEMBER 1997

A/C 709

TMS (PILOT PRO)



